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Evaluation of antimicrobial effect of four disinfectant solutions on handpieces contaminated to staphylococcus aureus , pseudomonas aeruginosa and candida albicans

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Abstract:

Background and Aim: Contaminated dental handpieces have the potential to transfer infection to patients. New generation of autoclavable turbines have to some extent overcome the problem however, in clinic sometimes it is necessary to use chemical to disinfect handpieces. The aim of this study was to determine the antimicrobial effect of some routinely used disinfectant solutions on dental contaminated handpieces.

Materials and Methods: In this experimental study 35 turbines were sterilized. The turbines' heads were inserted into microbial suspension containing staphylococcus, pseudomonas and candida and then exposed to the disinfectant solutions. Inoculations into culture medium were made at different intervals. All medium was incubated for 24 hours at 37°C followed by spectrophotometer inspection for detection of microbial growth. Serial dilutions of disinfectant agents were used to determine the highest dilution in which there was no microbial growth. Kruskal wallis test was used for statistical analysis and $p < 0.05$ was considered as the level significance.

Results: Ethanol had antimicrobial effect on all of the tested microorganisms at dilution of 1:4. Betadine at dilution of 1:64 caused inhibition of all of the microbes except pseudomonas. Micro 10 had antimicrobial effect up to dilution of 1:256 but could not inhibit microbial growth at higher dilution. Sodium hypochlorite inhibited growth of the three microorganisms up to dilution of 1:1024.

Conclusion: Based on the results of this study sodium hypochlorite was found to be the most effective antimicrobial agent among those used in this study, inhibiting microbial growth at the highest dilution.

Keywords:

[Disinfectant solution](#) , [Dental hand pieces](#) , [Staphylococcus aureus](#) , [Pseudomonas aeruginosa](#) , [Candida albicans](#)

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